

# MISSOURI DEPARTMENT OF NATURAL RESOURCES



## PUBLIC NOTICE

### DRAFT MISSOURI STATE OPERATING PERMIT

DATE: October 22, 2004

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed effluent limitations and/or determinations are invited to submit them in writing to the Department of Natural Resources, Water Protection and Soil Conservation Division, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, ATTN: Peter Goode, P.E., Chief, NPDES Permit and Engineering Section. Please include the permit number in all comment letters.

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by November 22, 2004 or received in our office by 5:00 p.m. on November 25, 2004. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at DNR's website, <http://www.dnr.mo.gov/wpscd/wpcp/homewpcp.htm>, or at the Department of Natural Resources, Water Protection Program, 205 Jefferson Street, P.O. Box 176, Jefferson City, Missouri 65102, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

Public Notice Date: October 22, 2004

Permit Number: MO-0113085

Kansas City Regional Office

<b>FACILITY NAME AND ADDRESS</b>	<b>NAME AND ADDRESS OF OWNER</b>
Parkville Sequencing Batch Reactor WWTP 12303 NW Highway FF Parkville, MO 64152	City of Parkville 1201 East Street Parkville, MO 64152
<b>RECEIVING STREAM &amp; LEGAL DESCRIPTION</b>	<b>TYPE OF DISCHARGE</b>
Rush Creek, Sec. 33, T51N, R34W, Platte County	Domestic, reissuance

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress) as amended,

Permit No.

MO-0113085

Owner:

City of Parkville

Address:

1201 East Street, Parkville, MO 64152

Continuing Authority:

Same as above

Address:

Same as above

Facility Name:

Parkville Sequencing Batch Reactor WWTP

Facility Address:

12303 NW Highway FF, Parkville, MO 64152

Legal Description:

SW ¼, NE ¼, Sec. 33, T51N, R34W, Platte County

Receiving Stream:

Rush Creek (P)

First Classified Stream and ID:

Rush Creek (P)(00278)

USGS Basin & Sub-watershed No.: (10240011-100001)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

**FACILITY DESCRIPTION**

Outfall #001 – POTW - SIC #4952

Sequential batch reactor/aerobic digester/sludge is land applied.

Design population equivalent is 7,490.

Design flow is 749,000 gallons per day.

Actual flow is 450,000 gallons per day.

Design sludge production is 112 dry tons/year.

Actual sludge production is 67 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Stephen M. Mahfood, Director, Department of Natural Resources  
Executive Secretary, Clean Water Commission

Expiration Date  
MO 780-0041 (10-93)

Jim Hull, Director of Staff, Clean Water Commission

<b>A. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					PAGE NUMBER 2 of 8	
					PERMIT NUMBER MO-0113085	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect through September 30, 2006. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	once/week	24 hr. total
Biochemical Oxygen Demand <sub>5</sub> **	mg/L		25	25	once/week	Note 1
Total Suspended Solids**	mg/L		45	30	once/week	Note 1
pH – Units	SU	***		***	once/week	grab
Ammonia as N	mg/L	5.0		5.0	once/week	Note 1
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE _____.						
<u>INSTREAM MONITORING</u> – Upstream sample to be collected at the SW ¼, NE ¼, Sec. 33, T51N, R34W, Platte County. Downstream sample to be collected at the bridge in the SW ¼, NE ¼, Sec. 33, T51N, R34W, Platte County.						
Dissolved Oxygen	mg/L	*		*	once/month	grab
Total Suspended Solids	mg/L	*		*	once/month	grab
pH - Units	SU	*		*	once/month	grab
Ammonia as N	mg/L	*		*	once/month	grab
Temperature	°F	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE _____.						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Condition #8			once/year	Note 1
					In September	
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II &amp; III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

<b>A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					Page 3 of 8	
					PERMIT NUMBER MO-0113085	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on October 1, 2006, and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	once/week	24 hr. total
Biochemical Oxygen Demand <sub>5</sub> **	mg/L		25	25	once/week	Note 1
Total Suspended Solids**	mg/L		45	30	once/week	Note 1
pH – Units	SU	***		***	once/week	grab
Ammonia as N (April 1 - October 31)	mg/L	3.0		1.5	once/week	Note 1
(November 1 - March 31)		4.7		2.4		
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE _____.						
<u>INSTREAM MONITORING</u> – Upstream sample to be collected at the SW ¼, NE ¼, Sec. 33, T51N, R34W, Platte County. Downstream sample to be collected at the bridge in the SW ¼, NE ¼, Sec. 33, T51N, R34W, Platte County.						
Dissolved Oxygen	mg/L	*		*	once/month	grab
Total Suspended Solids	mg/L	*		*	once/month	grab
pH – Units	SU	*		*	once/month	grab
Ammonia as N	mg/L	*		*	once/month	grab
Temperature	°F	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE _____.						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Condition #8			once/year	Note 1 in September
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II &amp; III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

MO 780-0041 (10-93)

- \* Monitoring requirement only.
- \*\* This facility is required to meet a removal efficiency of 85% or more.
- \*\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

Note 1 – Two grab samples during each of three separate decant events to be composited. All three decant events can be from one tank, or two decant events can be from one tank and one decant event from the other tank.

### C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
  - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to area wide wastewater treatment system within 90 days of notice of its availability.
4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
    - (1) One hundred micrograms per liter (100 µg/L);
    - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
    - (4) The level established in Part A of the permit by the Director.
  - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
5. Report as no-discharge when a discharge does not occur during the report period.
  6. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
    - (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
    - (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids from the lagoon. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

C. SPECIAL CONDITIONS (continued)

7. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
- (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
  - (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
  - (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
  - (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
  - (e) There shall be no significant human health hazard from incidental contact with the water;
  - (f) There shall be no acute toxicity to livestock or wildlife watering;
  - (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
  - (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
8. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	100%	Annually	Note 1	September

- (a) Test Schedule and Follow-Up Requirements
- (1) Perform a single-dilution test in the months and at the frequency specified above.
- If the effluent passes the test, do not repeat the test until the next test period. Submit results with the annual report.
- If the effluent fails the test, a multiple dilution test shall be performed within 30 days, and biweekly thereafter, until one of the following conditions are met:
- (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
  - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (2) The permittee shall submit a summary of all test results for the test series to the Water Protection Program, Water Quality Monitoring and Assessment Section, P.O. Box 176, Jefferson City, MO 65102 within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Water Quality Monitoring and Assessment Section of the Water Protection Program within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

C. SPECIAL CONDITIONS (continued)

8. Whole Effluent Toxicity (WET)(continued)

(a) Test Schedule and Follow-Up Requirements (continued)

- (3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of the results.
- (6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

(b) PASS/FAIL procedure and effluent limitations

- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level;  $p = 0.05$ ) than that observed in the upstream receiving-water control sample. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.
- (2) To pass a multiple-dilution test:
  - (a) the computed percent effluent at the edge of the zone of initial dilution, Acceptable Effluent Concentration (AEC), must be less than three-tenths (0.3) of the  $LC_{50}$  concentration for the most sensitive of the test organisms; or,
  - (b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is an effluent limit violation.

(c) Test Conditions

- (1) Test species: *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow). Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.
- (2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
- (3) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.



C. SPECIAL CONDITIONS (continued)

8. Whole Effluent Toxicity (WET)(continued)

(c) Test Conditions (continued)

- (4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after sample collection.
- (5) Single-dilution tests will be run with:
  - (a) Effluent at the AEC concentration;
  - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
  - (c) reconstituted water.
- (6) Multiple-dilution tests will be run with:
  - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
  - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
  - (c) reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

9. The City of Parkville is currently performing a water quality study to determine the most appropriate ammonia limitations, based on fishery classification and ammonia degradation. This permit will be reopened if the findings of the water quality study justify alteration of permit limitations. The ammonia limitations listed within this permit may be raised depending upon the study results without violating the Federal Clean Water Act anti-backsliding provisions. This draft operating permit will be re-noticed prior to any changes in the limitations.

D. SCHEDULE OF COMPLIANCE

Permittee shall submit engineering plans and specifications, obtain a construction permit from the Department of Natural Resources, and complete construction of new facilities by September 1, 2006, to comply with the final effluent limitations of this permit by October 1, 2006. Interim reports shall be submitted on an annual basis beginning October 1, 2004.

## SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

### Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4 (minimum) single dilution method
No. of organisms/concentration:	2 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$ )
Test acceptability criterion:	90% or greater survival in controls

### Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method
No. of organisms/concentration:	2 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$ )
Test Acceptability criterion:	90% or greater survival in controls



Missouri Department of Natural Resources  
Water Protection Program  
NPDES Permits and Engineering Section

**Water Quality Review Sheet**  
**Determination of Effluent Limits**

**FACILITY INFORMATION**

FACILITY NAME: Parkville SBR WWTP NPDES #: MO-0113085

FACILITY TYPE/DESCRIPTION: Sequential batch reactor/aerobic digester/sludge land applied

ECOREGION: Central irregular plains 8- DIGIT HUC: 10240011 COUNTY: Platte  
Central Irregular Plains Osage Plains  
Mississippi Alluvial Plains Ozark Highlands

LEGAL DESCRIPTION: SW ¼, NE ¼, Sec. 33, T51N, R34W LATITUDE/LONGITUDE: 39°11'29.5"/-94°43'19.0"

WATER QUALITY HISTORY: Facility has been in chronic violation of effluent limit for ammonia, more than half the time over the last five years.

Facility has exceeded limit for Biochemical Oxygen Demand five times since August 1999, and for Total Suspended Solids eight times in the same period.

Facility has been under enforcement action by EPA because of persistent effluent violations.

**OUTFALL CHARACTERISTICS**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	OTHER
001	1.16	Sequential Batch Reactor	Rush Creek	

**RECEIVING WATERBODY INFORMATION**

WATERBODY	CLASS	7Q10 (CFS)	*DESIGNATED USES	OTHER CHARACTERISTICS
Rush Creek	P	0.1	AQL, LWW	2.4 miles to confluence with Missouri River. Rush Creek is channelized and in a flood plain.
Missouri River	P	12000	IRR, LWW, DWS, AQL, BTG, IND	

\*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warmwater Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

COMMENTS: Any planned upgrade to this facility should include the means to significantly reduce ammonia in the effluent.

As of October, 2002, facility has undergone changes in management due to previous operating problems.

**MIXING CONSIDERATIONS**

**Mixing Zone.** Length of ¼ mile downstream from outfall as per 10 CSR 20-7.031(4) (A) 5B(I) (a).

**Zone of Initial Dilution (Z.I.D.).** Not allowed as per 10 CSR 20-7.031(4) (A) 5B(I) (b).

**PERMIT LIMITS AND INFORMATION**

TMDL WATERSHED: ☒ Y W.L.A. STUDY CONDUCTED: ☒ N DISINFECTION REQUIRED: ☒ N DISINFECTION WAIVER: ☐ NA  
(Y OR N) (Y OR N) (Y OR N) (Y, N, NA)

**OUTFALL 001:**

WET TEST (Y OR N): ☒ Y FREQUENCY: Once/year A.E.C. 100% LIMIT: No significant mortality

PARAMETER	UNITS	MAXIMUM DAILY LIMIT	AVERAGE WEEKLY LIMIT	AVERAGE MONTHLY LIMIT	MONITORING FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	Once/week	24 hr total
Biochemical Oxygen Demand	mg/l		25	25	Once/week	Note 1
Total Suspended Solids	mg/l		45	30	Once/week	Note 1
pH - Units	SU	(6-9)			Once/week	Grab
Ammonia as Nitrogen (April 1 - October 31)	mg/l	1.7		0.8	Once/week	Note 1
Ammonia as Nitrogen (November 1 - March 31)	mg/l	2.9		1.4	Once/week	Note 1

\* Monitor only

Note 1 - Two grab samples during each of three separate decant events to be composited. All three decant events can be from one tank, or two decant events can be from one tank and one decant event from the other tank.

## RECEIVING WATER MONITORING REQUIREMENTS

### Site S1. Upstream from outfall

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Dissolved Oxygen	Once/month	Grab	SW ¼, NE ¼, Sec. 33, T51N, R34W; 39°11'30.8"/-94°43'19.2"
Total Suspended Solids	Once/month	Grab	
pH - Units	Once/month	Grab	
Ammonia as Nitrogen	Once/month	Grab	

### Site S2. At bridge, downstream from outfall

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Dissolved Oxygen	Once/month	Grab	SW ¼, NE ¼, Sec. 33, T51N, R34W; 39°11'25.5"/-94°43'15.3"
Total Suspended Solids	Once/month	Grab	
pH - Units	Once/month	Grab	
Ammonia as Nitrogen	Once/month	Grab	

## DERIVATION AND DISCUSSION OF LIMITS

**Biochemical Oxygen Demand:** This limit, more restrictive than as provided in 10 CSR 20-7.015 (8) (B) was established in previous permit due to the nature of the receiving stream. It is considered an achievable limit for this facility.

**Total Suspended Solids and pH:** 10 CSR 20-7.015 (8) (B)

**Ammonia as N.** Criterion from 10 CSR 20-7.031 (Table B); Maximum Daily (MDL) and Average Monthly (AML) limits were calculated in accordance with guidelines outlined in EPA/505/2-90-001.

Ammonia Decay (Summer): 0.07 mg/l per mile

Ammonia Decay (Winter): 0.03 mg/l per mile

Chronic Criteria Total Ammonia (26°C, pH = 7.8): 1.2 mg/l

Summer Ammonia as N Criteria:  $((1.2 \text{ mg/l}) / 1.2 + 0.25(0.07)) = 1.0175 \text{ mg/l}$

Chronic Criteria Total Ammonia (6°C, pH = 7.8): 2.1 mg/l

Winter Ammonia as N Criteria:  $((2.1 \text{ mg/l}) / 1.2 + 0.25(0.03)) = 1.7575 \text{ mg/l}$

Current Ammonia as Nitrogen limits from WLA used to determine long term average (LTA). Maximum Daily (MDL) and Average Monthly (AML) limits were calculated in accordance with methods outlined in EPA/505/2-90-001.

Season	W.L.A	L.T.A	M.D.L.	A.M.L.
Summer (April 1 - October 31)	1.0175	0.536	1.668	0.831
Winter (November 1 - March 31)	1.7575	0.926	2.88	1.436

C.V. = 0.6, n = 4

Mark W Osborn

Date: 11/25/02

Unit Chief: Mohsen Dkhili

### Addendum:

Based upon information submitted by the City of Parkville the Department is proposing ammonia limits based upon Limited Warm Water Fishery criteria:

- **Ammonia as Nitrogen**. Limited warm-water fishery ammonia criteria apply [10 CSR 20-7.031, Table B]. Background Ammonia as Nitrogen for all receiving streams = 0.01 mg/L

Season	Temp (°C)	pH (SU)	Total Ammonia CCC (mg/L)	Total Ammonia CMC (mg/L)
Summer	26	7.8	2.0	22.4
Winter	6	7.8	3.3	26.4

$$C_e = ((Q_e + Q_s)C - (Q_s * C_s))/Q_e$$

### **Summer**

Ammonia as Nitrogen CCC = 2.0/1.2 = 1.667 mg/L

Ammonia as Nitrogen CMC = 22.4/1.2 = 18.667 mg/L

### **Winter**

Ammonia as Nitrogen CCC = 3.3/1.2 = 2.75 mg/L

Ammonia as Nitrogen CMC = 26.4/1.2 = 22 mg/L

### Summer

Chronic WLA:  $C_e = ((1.16 + 0.1)1.667 - (0.1 * 0.01))/1.16$

$$C_e = 1.81 \text{ mg/L}$$

Acute WLA:  $C_e = ((1.16 + 0.1)18.667 - (0.1 * 0.01))/1.16$

$$C_e = 20.28 \text{ mg/L}$$

$LTA_c = 1.81 \text{ mg/L} (0.527) = 0.95387$  [CV = 0.6, 99<sup>th</sup> Percentile]

MDL = 0.95387 \* 3.11 = **3 mg/L** [CV = 0.6, 99<sup>th</sup> Percentile]

AML = 0.95387 \* 1.55 = **1.5 mg/L** [CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

### Winter

Chronic WLA:  $C_e = ((1.16 + 0.1)2.75 - (0.1 * 0.01))/1.16$

$$C_e = 2.88 \text{ mg/L}$$

Acute WLA:  $C_e = ((1.16 + 0.1)26.4 - (0.1 * 0.01))/1.16$

$$C_e = 28.7 \text{ mg/L}$$

$LTA_c = 2.88 \text{ mg/L} (0.527) = 1.5188$  [CV = 0.6, 99<sup>th</sup> Percentile]

MDL = 1.5188 \* 3.11 = **4.7 mg/L** [CV = 0.6, 99<sup>th</sup> Percentile]

AML = 1.5188 \* 1.55 = **2.4 mg/L** [CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

Reviewer: Alan Moreau

Date: October 13, 2004

Unit Chief: Richard Laux